
Editorial: GPT revolutionizing AI applications: empowering future digital transformation

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GPT stands for generative pre-trained transformer, which is a type of large language model (LLM) trained by leveraging neural networks and a vast large dataset mainly derived from the Internet. An LLM uses a recently fast evolved machine learning technique called deep learning to produce text that looks like it is produced by a human. When LLMs are well leveraged, empowered applications can perform various natural language processing tasks such as answering questions, summarizing texts and even generating or debugging lines of code. Undoubtedly, the ongoing, astonishing phenomenal artificial intelligence (AI) wave worldwide is attributed to the recently released ChatGPT whose LLM engine was trained by OpenAI using a massive dataset of web pages over the Internet, which included billions of texts from books, articles and other sources.

Furthermore, the new release of GPT-4 from OpenAI further enhanced the capability of ChatGPT based on GPT-3.5. It takes a longer text and an image as input, while generating much richer and improved responses than its earlier version. Text summarization, human-like conversation, music and essay composition, poetry and story writing, fake news generation are just a few listed here as GPT or the like AI's output today. Indeed, the generated viral sensation and excitement from GPT or generative AI in general have already made GPT an extremely hot topic for almost everyone, including from end users, educators, engineers, scientists, to entrepreneurs, investors, policymakers and so on so forth.

The overwhelming attention received from the advances of GPT has stimulated the emergence of a lot of variants of ChatGPT worldwide. Due to the flocking-in effects of capitalism or marketing propaganda, many of those variants might be imposters. AI policymakers and educators are deeply concerned with the negativity of the outcomes derived from GPT products, including but not limited to disinformation, academic cheating, deepfakes, bias, ethical implications and political propaganda. However, the majority of GPT related AI products are truly transforming the world in a positive manner, focusing on significantly improved productivity, convenience and daily life assistance that should make the world brighter and more promising over time.

Yes, it seems a little bit chaotic for now due to the lack of the needed AI regulations and risk management protocols. But AI will certainly continue to evolve and the output from the future AI could be drastically out of our imagination. While we are witnessing the dawn of a new digitalized era, the world starts to wonder how radical changes could be in the coming days when compared to the transformations in humanity with the arrival of electricity, personal computers, the Internet, or smartphones.

As we are waiting for safe protocols and regulatory frameworks around AI to ensure that the risks around AI will be manageable, this editorial calls on more research on how GPT or the like can revolutionize AI applications to empower positively the future digital transformations in serving the industry, government, public, society and human beings at large.



As a revolutionary example, here comes what GPT or the like can be a big play in the healthcare industry. The disparity of medical resources across regions is a common problem in many countries around the world. This problem is getting much worse in most of the developing countries given that their medical resources largely reside in big cities. People living in the countryside have great difficulties accessing the needed medical resources, in particular experienced doctors to get timely medical advice and treatments. Because of the scarcity of medical resources and poverty in general in remote areas, when those people encounter health problems, they tend to wait for treatments in months or sometimes even years until their health becomes much deteriorated. Consequently, they not only suffer financially but frequently lose their lives painfully at the end.

With the advances in digital technologies and GPT, promisingly, this can soon be changed. In a country, a well-trained and real-time medical knowledge base by leveraging GPT or the like as shown in Figure 1 should help train all doctors and keep their medical knowledge updated regardless of their locations. Different from many other GPT applications, the content in the medical knowledge base must be promptly updated and accurate as much as possible. No piece of medical knowledge thus can be updated directly by GPT. In other words, an appropriate knowledge updating mechanism is necessary as illustrated in Figure 1. For example, a piece of medical knowledge that can be updated in the common knowledge base must be signed off by at least three highly ranked medical doctors in the field. Given that each country has her own FDA to oversee legitimate medicines and treatments, it makes sense to have a country-based rather than a universal medical knowledge base. Of course, knowledge sharing should be encouraged around the world. Knowledge sharing during the COVID-19 pandemic has been an exemplary example although the technology used was elementary when compared to the future GPT-based solution.

The complete development of such a GPT-based medical knowledge base application to serve people requires tremendous and collaborative efforts from many stakeholders in a country. In addition to a large investment and forceful support from relevant stakeholders including governmental agencies, at least deep research in the following areas might be necessary before this kind of application can be fully leveraged to achieve transformative impacts on addressing the above-mentioned disparity problem around the world:

- (1) A legally appropriate knowledge updating mechanism;
- (2) A blockchain or the like solution to warrant the validity, immutability and trust and transparency of the data, information and knowledge generated, stored and distributed across organizations and applications; and
- (3) A technically and financially viable service model to ensure that the application will be sustainable in a country.

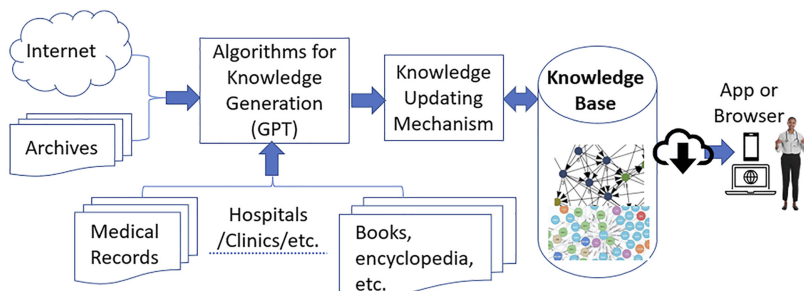


Figure 1.
An example of
GPT-based medical
knowledge base

There is an old Chinese saying, “throwing away a brick for a gem”. Here I throw away (show) the world such a “brick”. I am confident that there will be thousands if not millions of great and exciting examples that GPT or the like will revolutionize AI applications transforming how we will live, work, study and play in the near future. Promisingly, this GPT-based phenomenal AI wave is creating enormous opportunities to help us empower our future digital transformations in business and society.

Before I conclude my writing of this editorial, I wonder what an AI-based superpower brain would think about the fate of the current GPT fantasy. I asked Google’s Bard, “Is GPT a buzzword in 2023?” Here comes what Bard answered:

Yes, it is very likely that GPT will be a buzzword in 2023. GPT is a large language model, also known as a conversational AI or chatbot trained to be informative and comprehensive. It is trained on a massive amount of text data, and is able to communicate and generate human-like text in response to a wide range of prompts and questions. For example, GPT can provide summaries of factual topics or create stories.

GPT has the potential to revolutionize the way we interact with computers. It can be used to create more natural and engaging user interfaces, to generate more realistic and engaging content and to automate tasks that are currently done by humans. As GPT continues to develop, it is likely to become even more powerful and versatile. This will make it even more likely that GPT will be a buzzword in 2023 and beyond.

To me, this should never be just a buzzword or hype in marketing or profit chasing. Hence, this journal is particularly interested in publishing all kinds of scholarly research on all aspects of AI that focuses on new perspectives of digital transformation in business and society, cultivating much safer, more prosperous and more promising human life than ever before. Let us work together due diligently and ethically, truly making the world a bright and humane wonderland.

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